

What Represents A Chemical Hazard in Emergency Management?

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According to most academic and professional sources a chemical hazard can generally be broken down into several different hazard classes which display specific physical and health risks. Chemicals are capable of exhibiting multiple hazard risks and may contain a combination of several hazards. Certain factors tend to influence how chemicals behave and the specific hazards which they present.

The elements of consideration which are foremost in the determination of severity are the chemical concentrations, its physical state (i.e., solid, liquid or gas), the processes involved such as distillation, purification or the act of mixing with other chemicals, as well as the amount of moisture present or the storage conditions for the chemical. Each chemical class has certain safety precautions established specific to that particular hazard classes. All chemical hazards which are listed are based upon the DOT hazard class system.

The first class I will discuss briefly is the Explosives class. OSHA defines an explosive as a chemical which causes an instantaneous release of gas, heat and pressure when subjected to any sort of sudden shock, pressure change or an increase in temperature. Explosives are listed as a class 1 hazard. Most labs in operation here in America do not employ explosives however some products can become unstable with changes of conditions or by being subjected to contamination such as water or other chemicals. Since explosives frequently result in damage to the surrounding locations and the destruction of other materials like buildings, windows and people, the generation of toxic gases and associated fires explosive materials are especially desirable for terrorist types of organizations.

The second class that we shall review is the flammable and combustible Liquids. This class of hazardous materials is defined as those flammable liquid possessing a flashpoint below 100 degrees F. To further explain it the flashpoint is the minimum temperature at which the liquid emits sufficient vapor to ignite. There are various classes assigned according to the chemicals flash point and boiling point. Usually flammable liquids are classified as a Class 3 hazard.

Next, we encounter the flammable solids which are solids which are capable of causing fires through the actions of friction, absorption of moisture or by mere spontaneous chemical change. These products are listed as class 4 hazards

In this forum article we have merely touched the surface of hazardous materials. Further study would reveal spontaneously combustible material or pyrophorics, materials which become dangerous when they are wet such as sodium metal or potassium metal, oxidizers and organic peroxides, various peroxide forming compounds, corrosives and of course the poisons.

In concluding it is important that all chemicals be treated with the respect which they deserve. Know the important facts about any chemicals which you will be working with and in the case of hazardous material professionals know the risks in your area. Read the material data Safety Sheets as appropriate and always wear and use safety equipment as directed.